

Inventor: Biaoyang Lin
Docket No.: P-IS 4373

TAGTTTGTATTTTTCATTACCAGCAAGGGTAAACAGTTATCCATGACCCATTTCTATGTTCTCGT
GGCATGCTTCCATGTACTGCCTCTGCATGCAGCAGGCCACCTCGGGCAGAGCCTAAAGCATGTGA
TAAATGAAATGCTATCACAATACAGGTTGTGTCTGAAAAACAAATGGCAACTTATTATCCAAGAT
CAATGAAGGAAAAAGCAAATTTACTAAAATATTTCTTTATTTGAATAAGGTCAATGCCATTTCTT
GAATTCCAGCTAGCATCAAATAATCAGGAAAAAAAAAACTTGACAAAATGTTATCCAATTGAAAT
TGACAGTGGATAGAAAACCCCTTTTAACTTTAAGTAATGTCATAAAAGAAATATATTAAACAAGC
AACAGACAGATCTAAAAGTTCCAAGTGTGGATTTACATTAGATCTTATAAATTAAAAAAATCC
TCAATATAATCATTTGTTCACTATCTTCTTTCAATAAGCACATGGACAGGGAAAGATAATCACAC
CTTAATATTCACAACTGCTATTTGTGTTCTTTACAAAAATTGTATCTCTGCAATGCAGTGAGGCA
GGCAATCCCTTGTTCAAGTCATTTCTGTTTTCCCTAAGTTATCAAAAAGTACAACGTCTGATAT
AAATTGTTACCATAATCACAATCAGGAAGGCAAAGAAGCTTTAGCAGGCAGGCTTGAAGATGGGA
GTTTTCATGGCTTGACCATGAATGATCTCAAGATGATTTCATAAGATTAAAAGCCATCACGAAAA
TACTGAAAGCAACAGGTAATAATCTGGATTGAGTCTGTAGTTGCTCATGAACCACGCGTTTTAAT
AAAAGGAACATTAAGTAAATTGTAGGTATAAAAGAATCAGTGCATATCTGTTAATGTCATTGACA
ATAAAAATATATTATCTTCTCAGCTCAGCTCTAAATTAACAAAACACCTATTTTTTTTTTTCCCAC
TCCTCATTTTAGTGGTTCTCAAACATTGGTGTGCTCAGAATCTCCTGAGGT

Figure 1

Docket No.: P-IS 4373

Sequence Range: 1 to 4527

10 20 30 40 50 60
TCCTTTGGGTTTCGGGTGAAAGCGCCTGGGGGTTTCGTGGCCATGATCCCCGAGCTGCTGGAG
AGGAACCCAAGCCCACTTTTCGCGGACCCCCAAGCACCGGTACTAGGGGCTCGACGACCTC

70 80 90 100 110 120
AACTGAAGGCGGACAGTCTCCTGCGAAACCAGGCAATGGCGGAGCTGGAGTTTGTTCAGA
TTGACTTCCGCCTGTCTAGAGGACGCTTTGGTCCGTTACCGCCTCGACCTCAAACAAGTCT
M A E L E F V Q>

130 140 150 160 170 180
TCATCATCATCGTGGTGGTGATGATGGTGATGGTGGTGGTGATCACGTGCCTGCTGAGCC
AGTAGTAGTAGCACCACCACTACTACCACTACCACCACCACTAGTGCACGGACGACTCGG
I I I I V V V M M V M V V V I T C L L S>

190 200 210 220 230 240
ACTACAAGCTGTCTGCACGGTCCTTCATCAGCCGGCACAGCCAGGGGCGGAGGAGAGAAG
TGATGTTTCGACAGACGTGCCAGGAAGTAGTCGGCCGTGTCGGTCCCCGCCTCCTCTCTTC
H Y K L S A R S F I S R H S Q G R R R E>

250 260 270 280 290 300
ATGCCCTGTCTCAGAAGGATGCCTGTGGCCCTCGGAGAGCACAGTGTGAGGCAACGGAA
TACGGGACAGGAGTCTTCTACGGACACCGGGAGCCTCTCGTGTCACAGTCCGTTGCCTT
D A L S S E G C L W P S E S T V S G N G>

310 320 330 340 350 360
TCCCAGAGCCGCAGGTCTACGCCCCGCCTCGGCCCCACCGACCGCCTGGCCCGTGC CGCCCT
AGGGTCTCGGCGTCCAGATGCGGGGCGGAGCCGGGTGGCTGGCGGACCGGCACGGCGGGA
I P E P Q V Y A P P R P T D R L A V P P>

370 380 390 400 410 420
TCGCCCAGCGGGAGCGCTTCCACCGCTTCCAGCCCACCTATCCGTACCTGCAGCACGAGA
AGCGGGTCGCCCTCGCGAAGGTGGCGAAGGTTCGGGTGGATAGGCATGGACGTCGTGCTCT
F A Q R E R F H R F Q P T Y P Y L Q H E>

430 440 450 460 470 480
TCGACCTGCCACCCACCATCTCGCTGTCTAGACGGGGAGGAGCCCCCACCCTACCAGGGCC
AGCTGGACGGTGGGTGGTAGAGCGACAGTCTGCCCCCTCCTCGGGGGTGGGATGGTCCCGG
I D L P P T I S L S D G E E P P P Y Q G>

490 500 510 520 530 540
CCTGCACCCTCCAGCTTCGGGACCCGAGCAGCAGCTGGAAGTGAACCGGGAGTCGGTGC
GGACGTGGGAGGTCTGAAGCCCTGGGGCTCGTTCGTGACCTTGACTTGCCCTCAGCCACG
P C T L Q L R D P E Q Q L E L N R E S V>

550 560 570 580 590 600
GCGCACCCCCAAACAGAACCATCTTCGACAGTGACCTGATGGATAGTGCCAGGCTGGGCG
CGCGTGGGGGTTTGTCTTGGTAGAAGCTGTCACTGGACTACCTATCACGGTCCGACCCGC
R A P P N R T I F D S D L M D S A R L G>

Figure 2 (Page 1 of 7)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

610 620 630 640 650 660
GCCCCCTGCCCCCCCCAGCAGTAACTCGGGGCATCAGCGCCACGTGCTACGGCAGCGGGCGGGC
CGGGGACGGGGGGGGTCGTCATTGAGCCCGTAGTCGCGGTGCACGATGCCGTGCGCGCCCG
G P C P P S S N S G I S A T C Y G S G G>

670 680 690 700 710 720
GCATGGAGGGGCGCGCCCGCCACCTACAGCGAGGTCATCGGCCACTACCCGGGGTCCTCCT
CGTACCTCCCCGGCGGGCGGGTGGATGTCGCTCCAGTAGCCGGTGATGGGCCCCAGGAGGA
R M E G P P P T Y S E V I G H Y P G S S>

730 740 750 760 770 780
TCCAGCACCAGCAGAGCAGTGGGCCGCCCTCCTTGCTGGAGGGGACCCGGCTCCACCACA
AGGTGCTGGTTCGTCCTCGTCACCCGGCGGGAGGAACGACCTCCCCGAGGTGGTGT
F Q H Q Q S S G P P S L L E G T R L H H>

790 800 810 820 830 840
CACACATCGCGCCCCCTAGAGAGCGCAGCCATCTGGAGCAAAGAGAAAGGATAAACAGAAAG
GTGTGTAGCGCGGGGATCTCTCGCGTCGGTAGACCTCGTTTCTCTTCTATTTGTCTTTC
T H I A P L E S A A I W S K E K D K Q K>

850 860 870 880 890 900
GACACCCTCTCTAGGGTCCCCAGGGGGGCGGGCTGGGGCTGCGTAGGTGAAAAGGCAGA
CTGTGGGAGAGATCCCAGGGGTCCCCCGGCCGACCCGACGCATCCACTTTTCCGTCT
G H P L *>

910 920 930 940 950 960
ACACTCCGCGCTTCTTAGAAGAGGAGTGAGAGGAAGGCGGGGGCGCAGCAACGCATCGT
TGTGAGGCGCGAAGAATCTTCTCCTCACTCTCCTTCCGCCCCCGCGTCGTTGCGTAGCA

970 980 990 1000 1010 1020
GTGGCCCTCCCCCTCCACCTCCCTGTGTATAAATATTTACATGTGATGTCTGGTCTGAAT
CACCGGGAGGGGAGGGTGGAGGGACACATATTTATAAATGTACACTACAGACCAGACTTA

1030 1040 1050 1060 1070 1080
GCACAAGCTAAGAGAGCTTGCAAAAAAAAAAGAAAAAAAAAACCACGTTTC
CGTGTTGATTCTCTCGAACGTTTTTTTTTTCTTTTTTCTTTTTTTTGGTGCAAAAG

1090 1100 1110 1120 1130 1140
TTTGTTGAGCTGTGTCTTGAAGGCAAAAGAAAAAAATTTCTACAGTAGTCTTTCTTGTT
AAACAACCTCGACACAGAACTTCCGTTTTCTTTTTTTAAAGATGTCATCAGAAAGAACAA

1150 1160 1170 1180 1190 1200
TCTAGTTGAGCTGCGTGCGTGAATGCTTATTTTCTTTTGTATGATAATTTCACTTAAC
AGATCAACTCGACGCACGCACTTACGAATAAAAGAAAACAAATACTATTAAAGTGAATTG

1210 1220 1230 1240 1250 1260
TTTAAAGACATATTTGCACAAAACCTTTGTTTAAAGATCTGCAATATTATATATATAAAT
AAATTTCTGTATAAACGTGTTTTGGAAACAAATTTCTAGACGTTATAATATATATATTTA

1270 1280 1290 1300 1310 1320
ATATATAAGATAAGAGAACTGTATGTGCGAGGGCAGGAGTATTTTGTATTAGAAGAGG
TATATATTCTATTCTTTGACATACACGCTCCCGTCCTCATAAAAACATAATCTTCTCC

Figure 2 (Page 2 of 7)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

1330 1340 1350 1360 1370 1380
CCTATTAAAAAAGTTGTTTTCTGAACTAGAAGAGGAAAAAATGGCAATTTTTGAG
GGATAATTTTTTTTTTCAACAAAAGACTTGATCTTCTCCTTTTTTTTACCGTTAAAAACTC

1390 1400 1410 1420 1430 1440
TGCCAAGTCAGAAAGTGTGTATTACCTTGTAAGAAAAAATTACAAAGCAGGGGTTTAG
ACGGTTCAGTCTTTCACACATAATGGAACATTTCTTTTTTTAATGTTTCGTCGCCAAATC

1450 1460 1470 1480 1490 1500
AGTTATTTATATAAATGTTGAGATTTTGCACTATTTTTTAATATAAATATGTCAGTGCTT
TCAATAAATATATTTACAACCTCTAAACGTGATAAAAAATTATATTTATACAGTCACGAA

1510 1520 1530 1540 1550 1560
GCTTGATGGAACTTCTCTTGTGTCTGTTGAGACTTTAAGGGAGAAATGTCCGAATTTCA
CGAACTACCTTTGAAGAGAACACAGACAACCTCTGAAATTCCCTCTTTACAGCCTTAAAGT

1570 1580 1590 1600 1610 1620
GAGTCGCCTGACGGCAGAGGGTGAGCCCCCGTGAGTCTGCAGAGAGGCCCTTGGCCAGGA
CTCAGCGGACTGCCGTCTCCCACTCGGGGGCACCTCAGACGTCTCTCCGGAACCGGTCCT

1630 1640 1650 1660 1670 1680
GCGGCGGGCTTTCCCGAGGGGCCACTGTCCCTGCAGAGTGGATGCTTCTGCCTAGTGACA
CGCCGCCCCGAAAGGGCTCCCCGGTGACAGGGACGTCTCACCTACGAAGACGGATCACTGT

1690 1700 1710 1720 1730 1740
GGTTATCACACGTTATATATATCCCTACCGAAGGAGACACCTTTTCCCCCCTGACCCAGA
CCAATAGTGGTGCAATATATAAGGGATGGCTTCTCTGTGGAAAAGGGGGGACTGGGTCT

1750 1760 1770 1780 1790 1800
ACAGCCTTTAAATCACAAAGCAAAATAGGAAAAGTTAACCACGGAGGCACCGAGTTCCAGGT
TGTCGGAATTTAGTGTTTCGTTTTATCCTTTCAATTGGTGCTCCGTGGCTCAAGGTCCA

1810 1820 1830 1840 1850 1860
AGTGGTTTTGCCTTTCCCAAAAATGAAAATAAACTGTTACCGAAGGAATTAGTTTTCTT
TCACCAAAACGGAAGGGTTTTTACTTTTATTTGACAATGGCTTCTTTAATCAAAAAGGA

1870 1880 1890 1900 1910 1920
CTTCTTTTTTCCAACGTGTGAAGGTCCCCGTGGGGTGAGCATGGTGCCCCCACAAGCCG
GAAGAAAAAAGGTTGACACTTCCAGGGGCACCCACCTCGTACCACGGGGAGTGTTCCGGC

1930 1940 1950 1960 1970 1980
CAGCGGCTGGTGCCCGGGCTACCAGGGACATGCCAGAGGGCTCGATGACTTGTCTCTGCA
GTCGCCGACCACGGGCCCCGATGGTCCCTGTACGGTCTCCCGAGCTACTGAACAGAGACGT

1990 2000 2010 2020 2030 2040
GGGCGCTTTGGTGGTTGTTTCAGCTGGCTAAAGGTTACCGGTGAAGGCAGGTGCGGTAAC
CCCGCGAAACCACCAACAAGTCGACCGATTTCCAAGTGCCCACTTCCGTCCACGCCATTG

2050 2060 2070 2080 2090 2100
TGCCGCACTGGACCCTAGGAAGCCCCAGGTATTGCAATCTGACCTCCTCTGTCTGTTT
ACGGCGTGACCTGGGATCCTTCGGGGTCCATAAGCGTTAGACTGGAGGAGGACAGACAAA

Figure 2 (Page 3 of 7)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

2110 2120 2130 2140 2150 2160
CCCTTCACGGATCAATTCTCACTTAAGAGGCCAATAAACAACCCAACATGAAAAGGTGAC
GGGAAGTGCCTAGTTAAGAGTGAATTCTCCGGTTATTTGTTGGGTTGTACTTTTCCACTG

2170 2180 2190 2200 2210 2220
AAGCCTGGGTTTCTCCCAGGATAGGTGAAAGGGTTAAAATGAGTAAAGCAGTTGAGCAAA
TTCGGACCCAAAGAGGGTCCTATCCACTTTCCCAATTTTACTCATTTCGTCAACTCGTTT

2230 2240 2250 2260 2270 2280
CACCAACCCGAGCTTCGGGCGCAGAATTCTTACCTTCTTCCCCCTTTCCATCTCCTTT
GTGGTTGGGCTCGAAGCCCGCTCTTAAGAAGTGGAAGAGAAGGGGAAAGGTAGAGGAAA

2290 2300 2310 2320 2330 2340
CCCCGCGGAAACAACGCTTCCCTTCTGGTGTGTCTGTTGATCTGTGTTTTTCAATTTACATC
GGGGCGCCTTTGTTGCGAAGGGAAGACCACACAGACAACCTAGACACAAAAGTAAATGTAG

2350 2360 2370 2380 2390 2400
TCTCTTAGACTCCGCTCTTGTCTCCAGGTTTTTACCAGATAGATTTGGGGTTGGCGGGA
AGAGAATCTGAGGCGAGAACAAGAGGTCCAAAAGTGGTCTATCTAAACCCCAACCGCCCT

2410 2420 2430 2440 2450 2460
CCTGCTGGTGACGTGCAGGTGAAGGACAGGAAGGGGCATGTGAGCGTAAATAGAGGTGAC
GGACGACCACTGCACGTCCACTTCCTGTCTTCCCCGTACACTCGCATTTATCTCCACTG

2470 2480 2490 2500 2510 2520
CAGAGGAGAGCATGAGGGGTGGGGCTTTGGGACCCACCGGGGCCAGTGGCTGGAGCTTGA
GTCTCTCTCGTACTCCCCACCCCGAAACCTGGGTGGCCCCGGTCACCGACCTCGAACT

2530 2540 2550 2560 2570 2580
CGTCTTTTCTCCCCATGGGGGTGGGAGGGCCCCCAGCTGGAAGAGCAGACTCCCAGCTGC
GCAGAAAGGAGGGGTACCCCCACCTCCCGGGGGTCGACCTTCTCGTCTGAGGGTTCGACG

2590 2600 2610 2620 2630 2640
TACCCCTTCCCTTCCCAGTGGGCTTTCCATTTTGGGCAGAATGCTGACTAGTAGAC
ATGGGGGAGGGAAGGGTACCCTCACCGAAAGGTAAAACCGTCTTACGACTGATCATCTG

2650 2660 2670 2680 2690 2700
TAACATAAAAGATATAAAAGGCAATAACTATTGTTTGTGAGCAACTTTTTTATAACTTCC
ATTGTATTTTCTATATTTTCCGTTATTGATAACAAACACTCGTTGAAAAAATATTGAAGG

2710 2720 2730 2740 2750 2760
AAAACAAAAACCTGAGCACAGTTTTGAAGTTCTAGCCACTCGAGCTCATGCATGTGAAAC
TTTTGTTTTTGGACTCGTGTCAAAACTTCAAGATCGGTGAGCTCGAGTACGTACACTTTG

2770 2780 2790 2800 2810 2820
GTGTGCTTTACGAAGGTGGCAGCTGACAGACGTGGGCTCTGCATGCCGCCAGCCTAGTAG
CACACGAAATGCTTCCACCGTCGACTGTCTGCACCCGAGACGTACGGCGGTTCGGATCATC

2830 2840 2850 2860 2870 2880
AAAGTTCTCGTTTATTGGCAACAGCAGAACCTGCCTCTCCGTGAAGTCGTCAGCCTAAAA
TTTCAAGAGCAAGTAACCGTTGTCGTCTTGGACGGAGAGGCACTTCAGCAGTCGGATTTT

Figure 2 (Page 4 of 7)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

2890 2900 2910 2920 2930 2940
TTTGTCTCTCTTGAAGAGGATTCTTTGAAAAGGTCCTGCAGAGAAATCAGTACAGGTT
AAACAAAGAGAGAACTTCTCCTAAGAACTTTTCCAGGACGTCTCTTTAGTCATGTCCAA

2950 2960 2970 2980 2990 3000
ATCCCGAAAGGTACAAGGACGCACTTGTAAAGATGATTAAACGTATCTTTCCTTTATGT
TAGGGCTTTCCATGTTCTGCGTGAACATTTCTACTAATTTTGCATAGAAAGGAAATACA

3010 3020 3030 3040 3050 3060
GACGCGTCTCTAGTGCCTTACTGAAGAAGCAGTGACACTCCCGTCGCTCGGTGAGGACGT
CTGCGCAGAGATCACGGAATGACTTCTTCGTCACTGTGAGGGCAGCGAGCCACTCCTGCA

3070 3080 3090 3100 3110 3120
TCCCGGACAGTGCCTCACTCACCTGGGACTGGTATCCCCCTCCAGGGTCCACCAAGGGCT
AGGGCTGTACGGAGTGAGTGGACCCTGACCATAGGGGAGGGTCCAGGTGGTTCCTCGA

3130 3140 3150 3160 3170 3180
CCTGCTTTTCAGACACCCCATCATCTCGCGCGTCTCACCTGTCTCTACCAGGGAGGT
GGACGAAAAGTCTGTGGGGTAGTAGGAGCGCGCAGGAGTGGGACAGAGATGGTCCCTCCA

3190 3200 3210 3220 3230 3240
GCCTAGCTTGGTGAGGTTACTCCTGCTCCTCCAACCTTTTTTTTGCCAAGGTTTGTACACG
CGGATCGAACCCTCCAATGAGGACGAGGAGGTTGGAAAAAACGGTTCCAAACATGTGC

3250 3260 3270 3280 3290 3300
ACTCCCATCTAGGCTGAAAACCTAGAAGTGGACCTTGTGTGTGTGCATGGTGTACGCCA
TGAGGGTAGATCCGACTTTTGGATCTTACCTGGAACACACACAGTACCACAGTCGGGT

3310 3320 3330 3340 3350 3360
AAGCCAGGCTGAGACAGTCCTCATATCCTCTTGAGCCAACTGTTTGGGTCTCGTTGCTT
TTCGGTCCGACTCTGTCTAGGAGTATAGGAGAACTCGGTTTGACAAACCCAGAGCAACGAA

3370 3380 3390 3400 3410 3420
CATGGTATGGTCTGGATTTGTGGGAATGGCTTTGCGTGAGAAAGGGGAGGAGAGTGGTTG
GTACCATAACAGACCTAAACACCTTACCGAAACGCACTCTTTCCCCTCCTCTCACCAAC

3430 3440 3450 3460 3470 3480
CTGCCCTCAGCCGGCTTGAGGACAGAGCCTGTCCCTCTCATGACAACTCAGTGTGGAAGC
GACGGGAGTCGGCCGAACCTCTGTCTCGGACAGGGAGAGTACTGTTGAGTCACAACCTCG

3490 3500 3510 3520 3530 3540
CCAGTGTCTCAGCTTCATGTCCAGTGGATGGCAGAAGTTCATGGGGTAGTGGCCTCTCA
GGTCACAGGAGTCGAAGTACAGGTCACCTACCGTCTTCAAGTACCCCATCACCGGAGAGT

3550 3560 3570 3580 3590 3600
AAGGCTGGGCGCATCCCAAGACAGCCAGGAGTGTCTCTGGAACGACCAGAGTTAAGC
TTCCGACCCGCGTAGGGTTCTGTGCGTCCGTCACAGAGACCTTTGCTGGTCTCAATTCTG

3610 3620 3630 3640 3650 3660
TCTCGGCTTCTCTGCTGAGGGTGCACCCTTTCTCTAGATGGTAGTTGTACGTTATCTT
AGAGCCGAAGAGACGACTCCACGTGGGAAAGGAGATCTACCATCAACAGTGCAATAGAA

Figure 2 (Page 5 of 7)

008212-03301

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

3670 3680 3690 3700 3710 3720
TGAAAACCTCTTGGACTGCTCCTGAGGAGGCCCTCTTTTCCAGTAGGAAGTTAGATGGGGG
ACTTTTGAGAACCTGACGAGGACTCCTCCGGGAGAAAAGGTCATCCTTCAATCTACCCCC

3730 3740 3750 3760 3770 3780
TTCTCAGAAGTGGCTGATTGGAAGGGGACAAGCTTCGTTTCAGGGGTCTGCCGTTCCATC
AAGAGTCTTCACCGACTAACCTTCCCCTGTTTGAAGCAAAGTCCCCAGACGGCAAGGTAG

3790 3800 3810 3820 3830 3840
CTGGTTTCAGAGAAGGCCGAGCGTGGCTTTCTCTAGCCTTGTCAGTGTCTCCCTGCCTGTC
GACCAAGTCTCTTCCGGCTCGCACCGAAAGAGATCGGAACAGTGACAGAGGGACGGACAG

3850 3860 3870 3880 3890 3900
AATCACCACCTTTCCYCCAGAGGAGGAAAATTATCTCCCCTGCAAAGCCCGGTTCTACAC
TTAGTGGTGGAAAGGRGGTCTCCTCCTTTTAATAGAGGGGACGTTTCGGGCCAAGATGTG

3910 3920 3930 3940 3950 3960
AGATTTTCAAAATTGTGCTAAGAACCGTCCGTGTTCTCAGAAAGCCAGTGTTTTTGCAA
TCTAAAGTGTTTAACACGATTCTTGGCAGGCACAAGAGTCTTTCGGGTCAAAAAACGTT

3970 3980 3990 4000 4010 4020
AGAATGAAAAGGGACCCCATATGTAGCAAAAATCAGGGCTGGGGGAGAGCCGGGTTTCATT
TCTTACTTTTCCCTGGGGTATACATCGTTTTTAGTCCCGACCCCTCTCGGCCCAAGTAA

4030 4040 4050 4060 4070 4080
CCCTGTCTCATTGGTTCGTCCCTATGAATTGTACGTTTCAGAGAAATTTTTTTCCTATG
GGGACAGGAGTAACCAGCAGGGATACTTAACATGCAAAGTCTCTTTAAAAAAAAGGATAC

4090 4100 4110 4120 4130 4140
TGCAACACGAAGCTTCCAGAACCATAAAAATATCCCGTCGATAAGGAAAAGAAATGTCGTT
ACGTTGTGCTTGAAGGTCTTGGTATTTTATAGGGCAGCTATTCCTTTCTTTTACAGCAA

4150 4160 4170 4180 4190 4200
GTTGTTGTTTTTCTGGAAACTGCTTGAAATCTTGCTGTACTATAGAGCTCAGAAGGACAC
CAACAACAAAAAGACCTTTGACGAACCTTTAGAACGACATGATATCTCGAGTCTTCCTGTG

4210 4220 4230 4240 4250 4260
AGCCCGTCCTCCCCTGCCTGCCTGATTCCATGGCTGTTGTGCTGATTCCAATGCTTTCAC
TCGGGCAGGAGGGGACGGACGGACTAAGGTACCGACAACACGACTAAGGTTACGAAAGTG

4270 4280 4290 4300 4310 4320
GTTGGTTTCCTGGCGTGGGAACTGCTCTCCTTTGCAGCCCCATTTCCCAAGCTCTGTTCAA
CAACCAAGGACCGCACCCCTTGACGAGAGGAAACGTCGGGGTAAAGGGTTCGAGACAAGTT

4330 4340 4350 4360 4370 4380
GTTAAACTTATGTAAGCTTTCCGTGGCATGCGGGGCGCGCACCCACGTCCCCGCTGCGTA
CAATTTGAATACATTGAAAGGCACCGTACGCCCCGCGCGTGGGTGCAGGGGCGACGCAT

4390 4400 4410 4420 4430 4440
AGACTCTGTATTTGGATGCCAATCCACAGGCCTGAAGAACTGCTTGTTGTGTATCAGTA
TCTGAGACATAAACCTACGGTTAGGTGTCCGACTTCTTTGACGAACAACACATAGTCAT

Figure 2 (Page 6 of 7)

0931512-032601

Inventor: Biaoyang Lin
Docket No.: P-IS 4373

4450 4460 4470 4480 4490 4500
ATCATTAGTGGCAATGATGACATTCTGAAAAGCTGCAATACTTATACAATAAATTTTACA
TAGTAATCACCGTTACTACTGTAAGACTTTTCGACGTTATGAATATGTTATTTAAAATGT

4510 4520
ATTCTTTGGAAAAAAAAAAAAAAAAAAAA
TAAGAAACCTTTTTTTTTTTTTTTTTTTT

09821812-032901

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

Sequence Range: 1 to 2213

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      10      20      30      40      50      60
GGGGGGCTGACAACAACTGTGATAGGTACGAGGCTGGGTGTGGATCGGCCGAGGCTCTCC
CCCCCGACTGTTGTTGACACTATCCATGCTCCGACCCACACCTAGCCGGCTCCGAGAGG
G G L T T T V I G T R L G V D R P R L S>

      70      80      90     100     110     120
TGGAGCGCTGGGCCTTCGCTGGCCGCACCGGCAGCCATGAGCTCGGAGATGGAGCCGCTG
ACCTCGCGACCCGGAAGCGACCGGCGTGGCCGTCGGTACTCGAGCCTCTACCTCGGCGAC
W S A G P S L A A P A A M S S E M E P L>

     130     140     150     160     170     180
CTCCTGGCCTGGAGCTATTTTAGGCGCAGGAAGTTCAGCTCTGCGCCGATCTATGCACG
GAGGACCGGACCTCGATAAAATCCGCGTCCTTCAAGGTCGAGACGCGGCTAGATACGTGC
L L A W S Y F R R R K F Q L C A D L C T>

     190     200     210     220     230     240
CAGATGCTGGAGAAGTCCCCCTTATGACCAGGCAGCTTGGATCTTAAAAGCAAGAGCGCTA
GTCTACGACCTCTTCAGGGGAATACTGGTCCGTCGAACCTAGAATTTTCGTTCTCGCGAT
Q M L E K S P Y D Q A A W I L K A R A L>

     250     260     270     280     290     300
ACAGAAATGGTATACATAGATGAAATTGATGTTAGATCAGGAAGGAATTGCAGAAATGATG
TGTCTTTACCATATGTATCTACTTTAACTACATCTAGTCCTTCCTTAACGTCTTTACTAC
T E M V Y I D E I D V D Q E G I A E M M>

     310     320     330     340     350     360
CTGGATGAAAATGCTATAGCTCAAGTTCCACGCCCTGGAACGTCTTTGAAACTCCCTGGA
GACCTACTTTTACGATATCGAGTTCAAGGTGCGGGACCTTGCAGAAACTTTGAGGGACCT
L D E N A I A Q V P R P G T S L K L P G>

     370     380     390     400     410     420
ACTAATCAGACAGGAGGGCCTAGCCAGGCCGTTAGGCCAATCACACAAGCTGGAAGACCC
TGATTAGTCTGTCTCTCCCGGATCGGTCCGGCAATCCGGTTAGTGTGTTTCGACCTTCTGGG
T N Q T G G P S Q A V R P I T Q A G R P>

     430     440     450     460     470     480
ATTACAGGTTTTCCTCAGGCCCAGCACGCAGAGTGAAGGCCAGGCACTATGGAACAGGCT
TAATGTCCAAAGGAGTCCGGGTCGTGCGTCTCACCTTCCGGTCCGTGATACCTTGTCCTGA
I T G F L R P S T Q S G R P G T M E Q A>

     490     500     510     520     530     540
ATCAGAACACCCAGAACCGCCTACACAGCCCGCCCTATCACCAGCTCCTCCGGAAGATTT
TAGTCTTGTGGGTCTTGGCGGATGTGTGCGGGCGGGATAGTGGTCGAGGAGGCCTTCTAAA
I R T P R T A Y T A R P I T S S S G R F>

     550     560     570     580     590     600
GTCAGGCTGGGAACGGCTTCCATGCTTACAAGTCCTGATGGACCATTTATAAATTTATCT
CAGTCCGACCCCTTGCCGAAGGTACGAATGTTTCAGGACTACCTGGTAAATATTTAAATAGA
V R L G T A S M L T S P D G P F I N L S>

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Figure 3 (Page 1 of 4)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

610 620 630 640 650 660
AGGCTGAATTTAACAAAGTATTCCCAGAAACCTAAGTTGGCAAAGGCTTGTTTGAGTATA
TCCGACTTAAATTTGTTTCATAAGGGTCTTTGGATTCAACCGTTTCCGAACAAACTCATAT
R L N L T K Y S Q K P K L A K A C L S I>

670 680 690 700 710 720
TCTTTCATCATGAAAAATGATGTTAAGACTGCTTTGGATCTGGCTGGCCCTCTCCACAGAA
AGAAAAGTAGTACTTTTACTACAATTCTGACGAAACCTAGACCGACCGGGAGAGGTGTCTT
S F I M K M M L R L L W I W L A L S T E>

730 740 750 760 770 780
CATTCTCAGTACAAGGACTGGTGGTGGAAAAGTACAGATTGGAAAATGTTACTACAGGTTG
GTAAGAGTCATGTTCTGACCACCACCTTTTCATGTCTAACCTTTTACAATGATGTCCAAC
H S Q Y K D W W W K V Q I G K C Y Y R L>

790 800 810 820 830 840
GGAATGTATCGTGAAGCAGAAAAACAGTTTAAATCAGCCCTGAAGCAGCAGGAAATGGTA
CCTTACATAGCACTTCGTCTTTTGTCAAATTTAGTCGGGACTTCGTTCGTCTTTACCAT
G M Y R E A E K Q F K S A L K Q Q E M V>

850 860 870 880 890 900
GATACATTTCTGTACTTGGCAAAAAGTTTATGTCTCATTGGATCAACCTGTGACTGCTTTA
CTATGTAAAGACATGAACCGTTTCAAATACAGAGTAACCTAGTTGGACACTGACGAAAT
D T F L Y L A K V Y V S L D Q P V T A L>

910 920 930 940 950 960
AATCTTTTCAAACAAGGCTTAGATAAGTTTCCAGGAGAAGTAACCCTGCTCTGTGGAATT
TTAGAAAAGTTTGTTCGAATCTATTCAAAGGTCCTCTTCATTGGGACGAGACACCTTAA
N L F K Q G L D K F P G E V T L L C G I>

970 980 990 1000 1010 1020
GCAAGAATCTATGAGGAAATGAACAATATGTCATCAGCAGCAGAATATTACAAAGAAGTT
CGTTCTTAGATACTCCTTTACTTGTATACAGTAGTCGTCTTATAATGTTTCTTCAA
A R I Y E E M N N M S S A A E Y Y K E V>

1030 1040 1050 1060 1070 1080
TTGAAACAAGACAATACTCATGTGGRAGCCATCGCATGCATTGGAAGCAACCACTTCTAT
AACTTTGTTCTGTTATGAGTACACCTCGGTACCGTACGTAACCTTCGTTGGTGAAGATA
L K Q D N T H V X A I A C I G S N H F Y>

1090 1100 1110 1120 1130 1140
TCTGATCAGCCAGAAATAGCTCTCCGGTTTTACAGGCGGCTGCTGCAGATGGGCATTTAT
AGACTAGTCGGTCTTTATCGAGAGGCCAAAATGTCCGCCGACGACGTCTACCCGTAAATA
S D Q P E I A L R F Y R R L L Q M G I Y>

1150 1160 1170 1180 1190 1200
AACGGCCAGCTTTTTTAACAATCTGGGGCTGTGTTGCTTCTATGCCCAGCAGTATGATATG
TTGCCGGTCGAAAAATTTAGACCCCGACACAACGAAGATACGGGTTCGTCATACTATAC
N G Q L F N N L G L C C F Y A Q Q Y D M>

1210 1220 1230 1240 1250 1260
ACTCTGACCTCATTTGAACGTGCCCTTTCTTTGGCTGAAAATGAAGAAGAGGCAGCTGAT
TGAGACTGGAGTAACTTGCACGGGAAAGAAACCGACTTTTACTTCTTCTCCGTCGACTA
T L T S F E R A L S L A E N E E E A A D>

Figure 3 (Page 2 of 4)

00021812-032304

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

1270 1280 1290 1300 1310 1320
GTCTGGTACAACCTTGGGACATGTAGCTGTGGGAATAGGAGATACAAATTTGGCCCATCAG
CAGACCATGTTGAACCCTGTACATCGACACCCCTTATCCTCTATGTTTAAACCGGGTAGTC
V W Y N L G H V A V G I G D T N L A H Q>

1330 1340 1350 1360 1370 1380
TGCTTCAGGCTGGCTCTGGTCAACAACAACAACCACGCCGAGGCCTACAACAACCTGGCT
ACGAAGTCCGACCGAGACCAGTTGTTGTTGTTGGTGCGGCTCCGGATGTTGTTGGACCGA
C F R L A L V N N N N H A E A Y N N L A>

1390 1400 1410 1420 1430 1440
GTGCTGGAGATGCGGAAGGGCCACGTTGAACAGGCAAGGGCACTATTACAAACTGCATCA
CACGACCTCTACGCCTTCCCGGTGCAACTTGTCCGTTCCCGTGATAATGTTTGACGTAGT
V L E M R K G H V E Q A R A L L Q T A S>

1450 1460 1470 1480 1490 1500
TCATTAGCACCCCATATGTATGAACCGCATTTTAATTTTGCAACAATCTCTGATAAGATT
AGTAATCGTGGGGTATACATACTTGGCGTAAAATTAACCGTTGTTAGAGACTATTCTAA
S L A P H M Y E P H F N F A T I S D K I>

1510 1520 1530 1540 1550 1560
GGAGATGTGCAGAGAAGCTATGTTGCTGCGCAGAAGTCTGAAGCAGCATTTCCAGACCAT
CCTCTAGACGTCTCTTCGATACAACGACGCGTCTTCAGACTTCGTCGTAAAGGTCTGGTA
G D L Q R S Y V A A Q K S E A A F P D H>

1570 1580 1590 1600 1610 1620
GTGGACACACAACATTTAATTAAACAATTAAGGCAGCATTTTGCTATGCTCTGATTGTTT
CACCTGTGTGTTGTAAATTAATTTGTTAATTCGTCGTAAACGATACGAGACTAACAAG
V D T Q H L I K Q L R Q H F A M L>

1630 1640 1650 1660 1670 1680
CTTAGACCACATATGTTCTTATGAAGCAGCATTATGCAAGGGGAAAAAAGCACTATGTCT
GAATCTGGTGATACAAGAATACTTCGTCGTAATACGTTCCCCTTTTTTCGTGATACAGA

1690 1700 1710 1720 1730 1740
GTGTATGTATGTATATAGTGAATACGTATATTTTAAACAAACCTGTCCTTGATATTAGTT
CACATACATACATATATCACATTATGCATATAAAATTGTTTGGACAGGAACCTATAATCAA

1750 1760 1770 1780 1790 1800
AAGGTGACACATAAGGGTGACACAGAATGTGTAATGCAAATTTTCATAGTAATAGTAACTT
TTCCACTGTGTATTCCCACTGTGTCTTACACATTACGTTTAAAGTATCATTATCATTGAA

1810 1820 1830 1840 1850 1860
TATAAAATAATATTATAAAATACAGGATTTAAACCTTTCTAAATAGATCCTGAAACTGTC
ATATTTTATTATAATATTTTATGTCCTAAATTTGGAAAGATTTATCTAGGACTTTGACAG

1870 1880 1890 1900 1910 1920
TCTCACATTATATAGTAGATGTTTGTGTTTATAATGTTTACAAAACATTTTGGTGAATTTCC
AGAGTGTAATATATCATCTACAAACAAATATTACAAATGTTTTGTAAAACCACTTAAAGG

1930 1940 1950 1960 1970 1980
TCAATGTTTTATAAATGTACATTTTTTAAAGTCCTTAAGCTGACTCTTAGCCATCATGTAG
AGTTACAAAATATTTACATGTAAAAAATTCAGGAATTCGACTGAGAATCGGTAGTACATC

Figure 3 (Page 3 of 4)

09221812-032804

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

1990	2000	2010	2020	2030	2040
CTTAAGGAGTCTGAAATCTGCCATTAAACTGCACCTTTAAGCCAGGTGTGGTAGCATGT					
GAATTCCTCAGACTTTAGACGGTAATTTTGACGTGGAAATTCGGTCCACACCATCGTACA					
2050	2060	2070	2080	2090	2100
GCCTATAGTCCCAGCTACTTGGGAGGTGGAGGTGGGAGGATTATAAATAGAGACTTTCCT					
CGGATATCAGGGTCGATGAACCTCCACCTCCACCTCCTAATATTTATCTCTGAAAGGA					
2110	2120	2130	2140	2150	2160
TAAGACTTTAAAAATGTATTTAAACTATTTTTATTAAATACTTTGTGATTTCTTATTA					
ATTCTGAAATTTTACATAAATTTTGATAAAAAATAATTTATGAAACACTAAAGGATAAT					
2170	2180	2190	2200	2210	
AGCTTTAAATAAATCATTGTGTAAACACCATCAAAGCGATAAGCTCTGTAA					
TCGAAATTTTATTTAGTAACACATTTTGTGGTAGTTTCGCTATTCGAGACATT					

Figure 3 (Page 4 of 4)

09821812-032804

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

Sequence Range: 1 to 4433

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      10      20      30      40      50      60
ATAGGAGTGGAGAACATGCACAATTACTGCTTTGTGTTTGCTCTGGGATACCTCACAGTG
TATCCTCACCTCTTGTACGTGTTAATGACGAAACACAAACGAGACCCTATGGAGTGTAC
I  G  V  E  N  M  H  N  Y  C  F  V  F  A  L  G  Y  L  T  V>

      70      80      90     100     110     120
TGCCAAGTTACTCGAGTCTATATCTTTGACTATGGACAATATTCTGCTGATTTTTTCAGGC
ACGGTTCAATGAGCTCAGATATAGAACTGATACCTGTTATAAGACGACTAAAAAGTCCG
C  Q  V  T  R  V  Y  I  F  D  Y  G  Q  Y  S  A  D  F  S  G>

     130     140     150     160     170     180
CCAATGATGATCATTACTCAGAAGATCACTAGTTTGGCTTGCGAAATACATGATGGGATG
GGTTACTACTAGTAATGAGTCTTCTAGTGATCAAACCGAACGCTTTATGTACTACCCTAC
P  M  M  I  I  T  Q  K  I  T  S  L  A  C  E  I  H  D  G  M>

     190     200     210     220     230     240
TTTCGGAAGGATGAAGAACTGACTTCCTCACAGAGGGATTTAGCTGTAAGGCGCATGCCA
AAAGCCTTCCTACTTCTTGACTGAAGGAGTGTCTCCCTAAATCGACATTCCGCGTACGGT
F  R  K  D  E  E  L  T  S  S  Q  R  D  L  A  V  R  R  M  P>

     250     260     270     280     290     300
AGCTTACTGGAGTATTTGAGTTACAACCTGTAACCTTCATGGGGATCCTGGCAGGCCCCACTT
TCGAATGACCTCATAAACTCAATGTTGACATTGAAGTACCCCTAGGACCGTCCGGGTGAA
S  L  L  E  Y  L  S  Y  N  C  N  F  M  G  I  L  A  G  P  L>

     310     320     330     340     350     360
TGCTCTTACAAAGACTACATTACTTTTCATTGAAGGCAGATCATACCATATCACACAATCT
ACGAGAATGTTTCTGATGTAATGAAAGTAACTTCCGTCTAGTATGGTATAGTGTGTAGA
C  S  Y  K  D  Y  I  T  F  I  E  G  R  S  Y  H  I  T  Q  S>

     370     380     390     400     410     420
GGTGAAAATGGAAAAGAAGAGACACAGTATGAAAGAACAGAGCCATCTCCAAATGTAAGG
CCACTTTTACCTTTTCTTCTCTGTGTCATACTTTCTTGTCTCGGTAGAGGTTTACATTCC
G  E  N  G  K  E  E  T  Q  Y  E  R  T  E  P  S  P  N  V  R>

     430     440     450     460     470     480
TCATGAGATTTATCTGGAGCCTTTACAGCATGTATTGACTGCGGKTGTTTCAGAAAGCTCTT
AGTACTCTAAATAGACCTCGGAAATGTCGTACATAACTGACGCCMACAAGTCTTCGAGAA
S>

     490     500     510     520     530     540
AGTTTGTGGGCTGTCCTTGTTATTTTCACTTGACCATCTGTACAACATTACCTGTGGAGTA
TCAAACACCCGACAGGAACAATAAAGTGAAGTGGTAGACATGTTGTAATGGACACCTCAT

     550     560     570     580     590     600
CAACATTGATGAGCATTTTCAAGCTACAGCTTCGTGGCCAACAAAGATTATCTATCTGTA
GTTGTAATACTACTCGTAAAAGTTCGATGTCTGAAGCACCGGTTGTTTCTAATAGATAGACAT

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Figure 4 (Page 1 of 6)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

610 620 630 640 650 660
TATCTCTCTTTTGGCTGCCAGACCCAAATACTATTTTGCATGGACGCTAGCTGACTGCCA
ATAGAGAGAAAAACCGACGGTCTGGGTTTATGATAAAACGTACCTGCGATCGACTGACGGT

670 680 690 700 710 720
TWAATAATGCTGCAGGCTTTGGTTTCAGAGGGTATGACGAAAAATGGAGCAGCTCGCTGGG
AWTTATTACGACGTCCGAAACCAAAGTCTCCCATACTGCTTTTACCTCGTCGAGCGACCC

730 740 750 760 770 780
ACTTAATTTCCAATTTGAGAATTCAACAAATAGAGATGTCAACAAGTTTCAAGATGTTTC
TGAATTAAAGGTTAAACTCTTAAGTTGTTTATCTCTACAGTTGTTCAAAGTTCTACAAAG

790 800 810 820 830 840
TTGATAATTGGAATATTCAGACAGCTCTTTGGCTCAAAAGGTGCGTTCCTTCAAAAACGA
AACTATTAACCTTATAAGTCTGTCGAGAAACCGAGTTTCCACGCAAGGAAGTTTTTGCT

850 860 870 880 890 900
TCTTTAGATGTGCTTTGGCGTCTAGTTCTCGAGGTTGAGCTTCATTGAGTTCAGGTTCTT
AGAAATCTACACGAAACCGCAGATCAAGAGCTCCAACCTCGAAGTAACTCAAGTCCAAGAA

910 920 930 940 950 960
GATTAAATTAACGGTGTTGAGTGACATTGTGACCTCAGTGTGAGCCGGGAAACACTGTTA
CTAATTTAATTGCCACAACCTCACTGTAACACTGGAGTCACAGTCGGCCCTTTGTGACAAT

970 980 990 1000 1010 1020
GCCTCCTCCTAAGCAAGTCAGTATCGAATGAGAACTATTTTGGCTTGAGTTCACGAATGCA
CGGAGGAGGATTTCGTTTCAGTCATAGCTTACTCTTGATAAAACCGAACTCAGTGCTTACGT

1030 1040 1050 1060 1070 1080
GCTATCCTGCAGGTGCAGCTATCCTGCCCTCTCAAGCCTCCTTTAAAGGCCTCTGCCAAT
CGATAGGACGTCCACGTGATAGGACGGGAGAGTTTCGGAGGAAATTTCCGGAGACGGTTA

1090 1100 1110 1120 1130 1140
GTCAGAGGTACCCAGTATCCTCCTTTGCAGCTCCTGATTGTGTTTCAGTAGAGATGTGGTT
CAGTCTCCAGTGGTGATAGGAGGAAACGTCGAGGACTAACACAAGTCATCTCTACACCAA

1150 1160 1170 1180 1190 1200
TAAATTAACAAGTGCTGCACAAGCACAGTACTTATGCCTGGGTACTCCAGAACAGTCCT
ATTTAATTGTTTCACGGACGTGTTTCGTGTCATGAATACGGACCCATGAGGTCTTGTGAGGA

1210 1220 1230 1240 1250 1260
GGTTTTAAATATTTCAATTCAACAAATCTTKATTTGTTAGGCAAGGGAAACAAACATGAG
CCAAAATTTATAAAGTTAAGTTGTTTAGAAMTAAACAATCCGTTCCCTTTGTTTGTACTC

1270 1280 1290 1300 1310 1320
TAAGATAAAAAGACTCAGCTCCTGAAAGTGAAAGAGTTCACAATTTTATTAAAGACACGG
ATTCTATTTTTCTGAGTCGAGGACTTTCACCTTCTCAAGTGTTAAATAATTTCTGTGCC

1330 1340 1350 1360 1370 1380
TGGTGTAATCAGACACATGCTGTTCCCTGTGGTGAGGATGAGGAGAGAGAAAGCAGGAAC
ACCACATTAGTCTGTGTACGACAAGGGACACCACTCCTACTCCTCTCTCTTCGTCCTTG

Figure 4 (Page 2 of 6)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

1390 1400 1410 1420 1430 1440
AGCGAGGGCACAGAGGGATGCGGGAAGAACTTCCTACAAGTGTGGGTGCTTGAGCTGAGG
TCGCTCCCGTGTCTCCCTACGCCCTTCTTGAAGGATGTTACACCCACGAACTCGACTCC

1450 1460 1470 1480 1490 1500
TTTGTGTCAGGAGCGTGTCTCGTGAACAGGGCAAGGTAGAGGCAAGCCAGGCTGGGTGGA
AAACACAGTCCTCGCACAGAGCACTTGTCCCGTTCCATCTCCGTTCGGTCCGACCCACCT

1510 1520 1530 1540 1550 1560
GTAACAGGTGCGAAGGACAGAGCTGGGGAACAGCACACTCTCCAGGGTCTCTTATCG
CATTGTCCACGCTTCCTGTCTCGACCCCTTGTCTGTGAGAGGGTCCCCAAGAGAATAGC

1570 1580 1590 1600 1610 1620
TCCCTGTGAGCACATTGCCCTATCTTGAATTTACTTCATAAAAAACGGCCCCCTATAACGA
AGGGACACTCGTGTAACGGGATAGAACTTAAATGAAGTATTTTTTGGCGGGGATATTGCT

1630 1640 1650 1660 1670 1680
TACGGTGATAAGCAGCCTTTTTTTATAGTGTCTTTTTTAAATGACAAATTAAACATCTT
ATGCCACTATTTCGTGCGAAAAAATATCACAGGAAAAAATTTACTGTTAATTTGTAGAA

1690 1700 1710 1720 1730 1740
TATCCCTTGAGATGGCTAGCATACGCTGTCATCTCTTACAGTGCTTGGCAGTCTCCCCA
ATAGGGAATCTACCGATCGTATGCGACAGTAGAGAAGTGTACGGACCGTCAGAGGGGT

1750 1760 1770 1780 1790 1800
GTGGCTGCAGATCCTCTGAGCTAATCTGTTGTGTTATTTTTTGTATTGTTATAATTTAA
CACCGACGTCTAGGAGACTCGATTAGACAACACAATAAAAAACAATAACAATATTAAAT

1810 1820 1830 1840 1850 1860
ATTTGATACCTTAGGGGAACTTTATTTTCAGCTGAGTTCTCTATCCCTGTCATAGAAGA
TAAACTATGGAATCCCCCTTTGAAATAAAAGTCGACTCAAGAGATAGGGACAGTATCTTCT

1870 1880 1890 1900 1910 1920
ATTGTAGACTAAGCACAGTCTATCTGCCGGAAGGAGTAGTGTTATTAGGTCAGTTGAAAG
TAACATCTGATTTCGTGTCAGATAGACGGCCTTCCTCATCACAATAATCCAGTCAACTTTC

1930 1940 1950 1960 1970 1980
TTATTGATTTTTTTTTTAAATAAAATAATGTAGGATAAAAGCAACCTTACTCTTTTTGTAAA
AATAACTAAAAAAATTTATTTTATTACATCCTATTTTCGTTGGAATGAGAAAAACATTT

1990 2000 2010 2020 2030 2040
TTGTATAGACTCCCAAATACTAGAAATGATCATTTAAGTTACTATATATACCAATATATA
AACATATCTGAGGGTTTATGATCTTTACTAGTAAATTCAATGATATATATGGTTATATAT

2050 2060 2070 2080 2090 2100
TACTATATATACCAATAAGAAGATGAGAATTAACCTTTATGTTCCCTAAATTTGACACTTAA
ATGATATATATGGTTATTCTTCTACTCTTAATTGAAATACAAGGATTTAACTGTGAATT

2110 2120 2130 2140 2150 2160
TAGCTATAGCCTCCCTGAGATCATAGAGAAGTGATTGCCTAAGATAAGTTGTATTTGTTT
ATCGATATCGGAGGGACTCTAGTATCTCTTCACTAACGGATTCTATTCAACATAAACAAA

Figure 4 (Page 3 of 6)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

2170 2180 2190 2200 2210 2220
TTCTAGTTACCCCTAAATCCTGTCAGGTAATAAAAAGAAATGATCATTGCAGGCTTTGTAAAC
AAGATCAATGGGATTTAGGACAGTCCATTATTTTCTTACTAGTAACGTCCGAAACATTTG

2230 2240 2250 2260 2270 2280
TCGGGTCACCTCACTCCACTTGGCTCTCCATGTTTTTCATGGTTTCTAGGGTGTGTTATGA
AGCCCAGTGAGTGAGGTGAACCGAGAGGTACAAAAAGTACCAAAGATCCCACACAATACT

2290 2300 2310 2320 2330 2340
ACGAACCTCCTTCAGTCCAACCTATCCAGACGTTTCTCTCTGCCATTTGGCACGGGGT
TGCTTGGAGGAAGTCAGGTTGATAGGTCTGCAAGTAAGAGAGACGGTAAACCGTGCCCCA

2350 2360 2370 2380 2390 2400
ATACCCAGGATATTATCTAACGTTTCTAACAGGGGTGTTAATGACATTAGCAGCAAGAGC
TATGGGTCCTATAATAGATTGCAAAGATTGTCCCCACAATTACTGTAATCGTCGTTCTCG

2410 2420 2430 2440 2450 2460
TGTAAGTATCAAGAATTTTATTTTACAATTCAATGGTCCACTTGAAGTGTAAAAAGGCT
ACATTCATAGTTCTTAAAAATAAAATGTTAAGTTACCAGGTGAAGTGTGACAATTTTCCGA

2470 2480 2490 2500 2510 2520
GAGTACATCTCTCTTACAAGGTAGACCCCTCTTTCCTTGGTCGTGGTCAGTATTGTCTTTT
CTCATGTAGAGAGAATGTTCCATCTGGGAGAAAAGGAACCAGCACCAGTCATAACAGGAAA

2530 2540 2550 2560 2570 2580
CCACTAGAAGCGAGGTGTGTACTGCGTGCATGTTTGCTGAGCGCTCACCACGGGGCTAGGC
GGTGATCTTTCGCTCCACACATGACGCACGTACAAACGACTCGCGAGTGGTGCCCGATCCG

2590 2600 2610 2620 2630 2640
TCCATGCCCAGTTTCTGTGAGGAGAAAAACACGTTTCTATGTGCCCCGGCAGGTAGGAGGCA
AGGTACGGGTCAAGGACACTCCTCTTTTGTGCAAAGATACACGGGCCGTCCATCCTCCGT

2650 2660 2670 2680 2690 2700
CTCACAAAATGTTACTTTGTCTTTACAGAAATTTTCTGAAGGAGAGATAAAAACTGAGTTA
GAGTGTTTTACAATGAAACAGAAATGTCTTAAAGACTTCCTCTCTATTTTTGACTCAAT

2710 2720 2730 2740 2750 2760
AATAAAGATGATCAGAATGGATGAGAAATAACTTTAGACATTATTTTATTGAACCTTCCC
TTATTTCTACTAGTCTTACCTACTCTTTATTGAAATCTGTAATAAAGTAAGTTGGAAGGG

2770 2780 2790 2800 2810 2820
AACTGAAATTATTTTATGATGTTATAACATGGATAGTAACTCAAGTAGCAATAAGTTACA
TTGACTTTAATAAAATACTACAATATTGTACCTATCATTGAGTTCATCGTTATTCAATGT

2830 2840 2850 2860 2870 2880
CAGTTGTGCCATTTGTGCTTCTTTCTATAAAACCATCACTCACGTTTTACAGCTCCTGGT
GTCAACACGGTAAACACGAAGAAAGATATTTTGGTAGTGAGTGCAAAATGTGAGGACCA

2890 2900 2910 2920 2930 2940
ATTATTGCCTGCACATTCTTGGTATCTTAGTATTATTGTTGTTGCCAGTGAAAAAACTC
TAATAACGGACGTGTAAGAACCATAGAATCATAATAACAACAACGGTCACTTTTTTTGAG

Figure 4 (Page 4 of 6)

098234-02304

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

3730 3740 3750 3760 3770 3780
CCAAATTATAGGTAGCTGATTTTGGCTGGAGAGTTTAATTACCTTGTGCAGTCAAAGAGCG
GGTTTAATATCCATCGACTAAAACGACCTCTCAAATTAATGGAACACGTCAGTTTCTCGC

3790 3800 3810 3820 3830 3840
CTTCCAGAAGGAATCTCTTAAACATAATGAGAGGTTTGGTAATGTGATATTTAAGCTT
GAAGGTCTTCCTTAGAGAATTTTGTATTACTCTCCAAACCATTACACTATAAAATTCGAA

3850 3860 3870 3880 3890 3900
ATTCTTTTTCTTAAAGAGAGAGGTGACGAAGGAAGGCAGGAATGAAGAAGCACTGCGTG
TAAGAAAAAGAATTTTCTCTCTCCACTGCTTCCTTCCGTCTTACTTCTTCGTGACGCAC

3910 3920 3930 3940 3950 3960
GCCTCCGGTGGAATGCACGGGGCACAGCCGCGACTCTGCAGGCAGCTTCCCCCCCATGCC
CGGAGGCCACCTTACGTGCCCCGTGTCGGCGCTGAGACGTCCGTCTGAAGGGGGGTACGG

3970 3980 3990 4000 4010 4020
CAGGGCTCTGCGCCGTCATGTGAGACTTAAAAAAAAAGTTGAATGACTTCGTGATACTTT
GTCCCGAGACGCGGCAGTACACTCTGAATTTTTTTTCAACTTACTGAAGCACTATGAAA

4030 4040 4050 4060 4070 4080
GGACTTCTAAATTAAATTTATCAGGCATAAATTATGTAGAATTAGAGGCTTTGAAAATAA
CCTGAAGATTTAATTTAAATAGTCCGTATTTAATACATCTTAATCTCCGAACTTTTATT

4090 4100 4110 4120 4130 4140
TACTGGTAGGTTGCTCAAAGGTTTTGAAAGAGAAATCGCTAGGTAGGTTACTATCTGGCT
ATGACCATCCAACGAGTTTCCAAAACCTTCTCTTTAGCGATCCATCCAATGATAGACCGA

4150 4160 4170 4180 4190 4200
AATCCATTTCTTATCCTTGACAATTTAATTCATATTTGGGAAACTTTTAGGGAAATGAAA
TTAGGTAAAGAATAGGAAGTGTAAATTAAGTATAAACCTTTGAAAATCCCTTTACTTT

4210 4220 4230 4240 4250 4260
AATAAAAGTCACTGAGTCTGGGTGACATTTTTTAAGAATAATATAAATTCAGTTTCAAAC
TTATTTTTCAGTGACTCAGACCCACTGTAAAAAATCTTATTATATTTAAGTCAAAGTTTG

4270 4280 4290 4300 4310 4320
TCTTCTCACATTAAATTTTGTGTGAAGTCTTACTAAAATGAGTTTTAGGTTCTGTAAG
AGAAGAGTGTAATTTTAAACGACACTTGAGAATGATTTTACTCAAAATCCAAGACATTC

4330 4340 4350 4360 4370 4380
TGGAAAAATGTGCTTTTATTTTATGGGCCATTTTACCACAATAATCTTGCCTTGGATT
ACCTTTTTACACGAAAATAAAATACCCGGTAAAAATGGTGTTGATTAGAACGGAACCTAA

4390 4400 4410 4420 4430
ACTAAGCATCTCCTGCGATCCACAGAGGACTGTGGTGGCCACAGGAGCTGAA
TGATTTCGTAGAGGACGCTAGGGTGTCTCCTGACACCACCGGTGTCTTCGACTT

Figure 4 (Page 6 of 6)

Sequence Range: 1 to 1276

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      10      20      30      40      50      60
ATAGGAGTGGAGAACATGCACAATTACTGCTTTGTGTTTGCTCTGGGATACCTCACAGTG
TATCCTCACCTCTTGTACGTGTTAATGACGAAACACAAACGAGACCCTATGGAGTGTCAC
  I  G  V  E  N  M  H  N  Y  C  F  V  F  A  L  G  Y  L  T  V>

      70      80      90     100     110     120
TGCCAAGTTACTCGAGTCTATATCTTTGACTATGGACAATATTCTGCTGATTTTTTCAGGC
ACGGTTCAATGAGCTCAGATATAGAACTGATACCTGTTATAAGACGACTAAAAAGTCCG
  C  Q  V  T  R  V  Y  I  F  D  Y  G  Q  Y  S  A  D  F  S  G>

     130     140     150     160     170     180
CCAATGATGATCATTACTCAGAAGATCACTAGTTTGGCTTGCGAAATACATGATGGGATG
GGTTACTACTAGTAATGAGTCTTCTAGTGATCAAACCGAACGCTTTATGTACTACCCTAC
  P  M  M  I  I  T  Q  K  I  T  S  L  A  C  E  I  H  D  G  M>

     190     200     210     220     230     240
TTTCGGAAGGATGAAGAACTGACTTCCTCACAGAGGGATTAGCTGTAAGGCGCATGCCA
AAAGCCTTCCTACTTCTTGACTGAAGGAGTGTCTCCCTAAATCGACATTCCGCGTACGGT
  F  R  K  D  E  E  L  T  S  S  Q  R  D  L  A  V  R  R  M  P>

     250     260     270     280     290     300
AGCTTACTGGAGTATTTGAGTTACAACCTGTAACCTTCATGGGGATCCTGGCAGGCCCACTT
TCGAATGACCTCATAAACTCAATGTTGACATTGAAGTACCCCTAGGACCGTCCGGGTGAA
  S  L  L  E  Y  L  S  Y  N  C  N  F  M  G  I  L  A  G  P  L>

     310     320     330     340     350     360
TGCTCTTACAAAGACTACATTACTTTTCATTGAAGGCAGATCATACCATATCACACAATCT
ACGAGAATGTTTCTGATGTAATGAAAGTAACCTCCGTCTAGTATGGTATAGTGTGTTAGA
  C  S  Y  K  D  Y  I  T  F  I  E  G  R  S  Y  H  I  T  Q  S>

     370     380     390     400     410     420
GGTGAAAATGGAAAAGAAGAGACACAGTATGAAAGAACAGNAGCCATCTCCAAATGTAAG
CCACTTTTACCTTTTCTTCTCTGTGTCATACTTTCTTGTGTCNTCGGTAGAGGTTTACATTC
  G  E  N  G  K  E  E  T  Q  Y  E  R  T  X  A  I  S  K  C  K>

     430     440     450     460     470     480
GTCATGAGATTTATCTGGAGCCTTTACAGCATGTATTGNACTGCGGKTGTTTCAGAAGCTC
CAGTACTCTAAATAGACCTCGGAAATGTCGTACATAACNTGACGCCMACAAGTCTTCGAG
  V  M  R  F  I  W  S  L  Y  S  M  Y  X  T  A  X  V  Q  K  L>

     490     500     510     520     530     540
TTAGTTTGTGGGCTGTCCTTGTTATTTCACTTGACCATCTGTACAACATTACCTGTGGAG
AATCAAACACCCGACAGGAACAATAAAGTGAAGTGGTAGACATGTTGTAATGGACACCTC
  L  V  C  G  L  S  L  L  F  H  L  T  I  C  T  T  L  P  V  E>

     550     560     570     580     590     600
TACAACATTGATGAGCATTTTCAAGCTACAGCTTCGTGGCCAACAAAGATTATCTATCTG
ATGTTGTAACACTACTCGTAAAAGTTCGATGTGCAAGCACCGGTTGTTTCTAATAGATAGAC
  Y  N  I  D  E  H  F  Q  A  T  A  S  W  P  T  K  I  I  Y  L>

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Figure 5 (Page 1 of 3)

Inventor: Biaoyang Lin

Docket No.: P-IS 4373

610 620 630 640 650 660
TATATCTCTCTTTTGGCTGCCAGACCCAAATACTATTTTGCATGGACGCTAGCTGATGCC
ATATAGAGAGAAAACCGACGGTCTGGGTTTATGATAAAACGTACCTGCGATCGACTACGG
Y I S L L A A R P K Y Y F A W T L A D A>

670 680 690 700 710 720
ATTAATAATGCTGCAGGCTTTGGTTTCAGAGGGTATGACGAAAATGGAGCAGCTCGCTGG
TAATTATTACGACGTCCGAAACCAAAGTCTCCCATACTGCTTTTACCTCGTCGAGCGACC
I N N A A G F G F R G Y D E N G A A R W>

730 740 750 760 770 780
GACTTAATTTCCAATTTGAGAATTCAACAAATAGAGATGTCAACAAGTTTCAAGATGTTT
CTGAATTAAGGTTAAACTCTTAAGTTGTTTATCTCTACAGTTGTTCAAAGTTCTACAAA
D L I S N L R I Q Q I E M S T S F K M F>

790 800 810 820 830 840
CTTGATAATTGGAATATTCAGACAGCTCTTTGGCCCCAAAAGGGTGTGTTATGAACGAACC
GAACTATTAACCTTATAAGTCTGTGCGAGAAAACCGGGTTTCCACACAATACTTGCTTGG
L D N W N I Q T A L W P K R V C Y E R T>

850 860 870 880 890 900
TCCTTCAGTCCAACATATCCAGACGTTTCATTCTCCCTGCCATTNTGGCACGGGGTATACCC
AGGAAGTCAGGTTGATAGGTCTGCAAGTAAGAGGGACGGTAANACCGTGCCCCATATGGG
S F S P T I Q T F I L P A I X A R G I P>

910 920 930 940 950 960
AGGATATTATCTAACGTTTCTAACAGGGGTGTTAATGACATTAGCAGCAGAGCTATGAGA
TCCTATAATAGATTGCAAAGATTGTCCCCACAATTACTGTAATCGTCGTCGATACTCT
R I L S N V S N R G V N D I S S R A M R>

970 980 990 1000 1010 1020
AATAACTTTAGACATTATTTTCATTGAACCTTCCCAACTGAAATTATTTTATGATGTTMTA
TTATTGAAATCTGTAATAAAGTAACTTGGAAGGGTTGACTTAAATAAAATACTACAAT
N N F R H Y F I E P S Q L K L F Y D V X>

1030 1040 1050 1060 1070 1080
ACATGGATAGTAACTCAAGTAGCAATAAGTTACACAGKTGKGSCATTTGTGCTTCTTTC
TGTACCTATCATTGAGTTCATCGTTATTCAATGTGTCTMACMCSGTAAACACGAAGAAAG
T W I V N S S S N K L H X X X I C A S F>

1090 1100 1110 1120 1130 1140
TATWAAACCATCACTCACRKTYYACAGGTCCGGTTTATTGCCGGACATACTGGTTCCCTCG
ATAWTTTGGTAGTGAGTGYMAARTGTCCAGGCCAAATAACGGCCTGTATGACCAAGGAGC
Y X T I T H X X Q V R F I A G H T G S S>

1150 1160 1170 1180 1190 1200
ATAATGGCGTGCCGGACAACGCGGAGAAAGGTACTGGAAGTTCCGCTCCACCAAGTCGTG
TATTACCGCACGGCCTGTTGCGCCTCTTTCCATGACCTTCAAGGCGAGGTGGTTTCAGCAC
I M A C R T T R R K V L E V P L H Q V V>

1210 1220 1230 1240 1250 1260
GGGGACACTTGGGACAGCTCTTCCACAAGCGCGCCGAAGCCGGACACAACGACGGGGCGG
CCCCTGTGAACCCTGTGCGAGAAGGTGTTGCGCGGGCTTCGGCCTGTGTTGCTGCCCCGCC
G D T W D S S S T S A P K P D T T T G R>

Figure 5 (Page 2 of 3)

09821812-032801

Figure 5 (Page 3 of 3)

Inventor: Biaoyang Lin
Docket No.: P-IS 4373

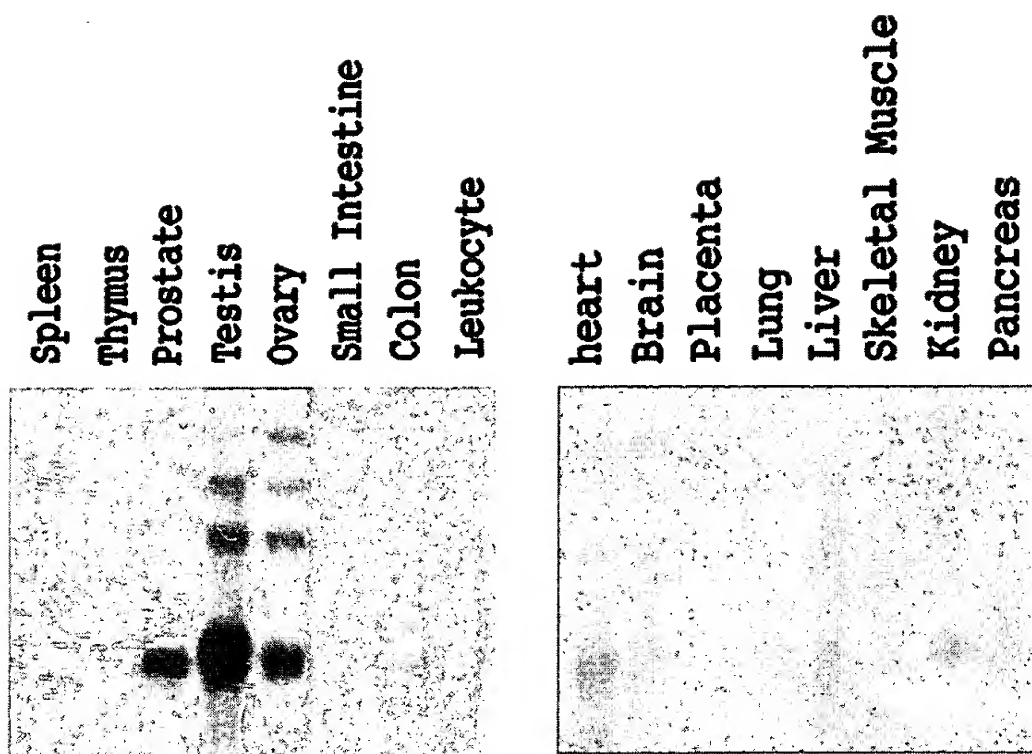


Figure 6